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# 公開実用平成 2-51925

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⑮ 考案の名称 車両の開閉体構造

⑯ 実 願 昭63-131400

⑰ 出 願 昭63(1988)10月6日

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## 明 細 書

### 1. 考案の名称

車両の開閉体構造

### 2. 実用新案登録請求の範囲

1. 車体に相隣接して第1室と第2室とを形成するとともに該第1室に第1開閉体を、該第2室に第2開閉体をそれぞれ取付け、該第1開閉体と第2開閉体とを一括的に開閉するようにした車両において、上記第1開閉体と第2開閉体とを上記第1室と第2室の中間位置に設けた開閉体支持基台に対してそれぞれヒンジアームを介して開閉可能に連結するとともに、開閉体の開操作力を補助するアシスト部材を、その一端を上記第1、第2開閉体のいずれか一方側に、またその他端を他方の開閉体に対応するヒンジアームにそれぞれ連結した状態で配置したことを特徴とする車両の開閉体構造。

### 3. 考案の詳細な説明

(産業上の利用分野)

ド側ヒンジアーム 22 との間に設けることもできるものである。

#### 4. 図面の簡単な説明

第 1 図は本考案の実施例に係る開閉体構造を備えた車両の車体後部構造断面図、第 2 図及び第 3 図は第 1 図の状態変化図、第 4 図は本考案の実施例に係る開閉体構造を備えた車両の外観斜視図、第 5 図は第 4 図に示した車両の車体後部の構造説明図である。

- 1 . . . . . ルーフパネル
- 2 . . . . . リヤビラー
- 3 . . . . . シート
- 5 . . . . . 空室部
- 6 . . . . . トランクルーム
- 7 . . . . . ルーフ収納室
- 10 . . . . . シートバックパネル
- 11 . . . . . エンドパネル
- 12 . . . . . リヤフロアパネル
- 13 . . . . . デッキメンバー
- 15 . . . . . ガスダンパー

1 6 . . . . . モーター

2 1 . . . . . トランクリッド

2 2 . . . . . リッド側ヒンジアーム

2 3 . . . . . ヒンジブラケット

2 4 . . . . . ヒンジブラケット

2 5 . . . . . ヒンジピン

4 1 . . . . . デッキカバー

4 2 . . . . . カバー側ヒンジアーム

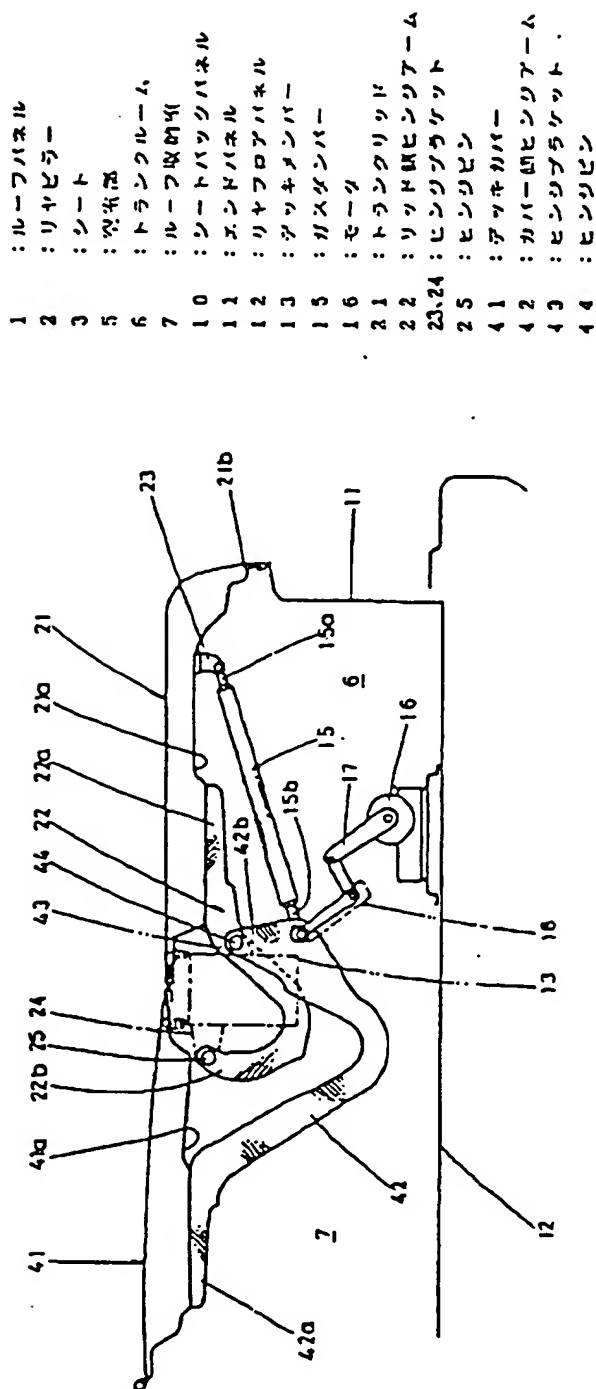
4 3 . . . . . ヒンジブラケット

4 4 . . . . . ヒンジピン

出 願 人      マ ッ ダ 株 式 会 社

代 理 人      弁 理 士   大 浜      博





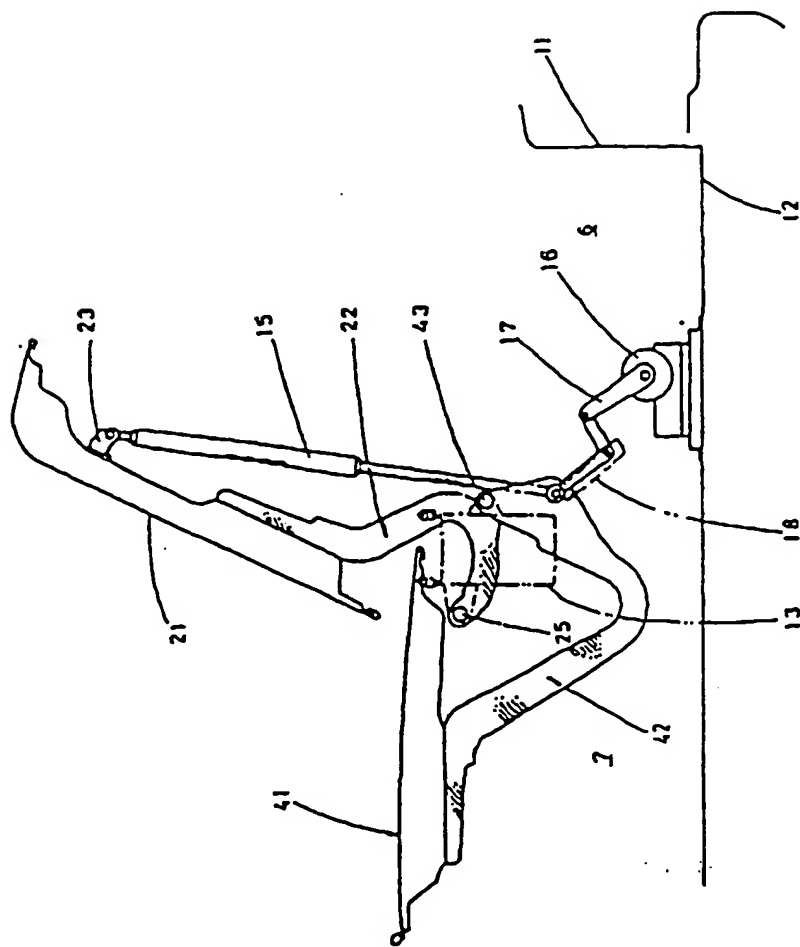
第1図

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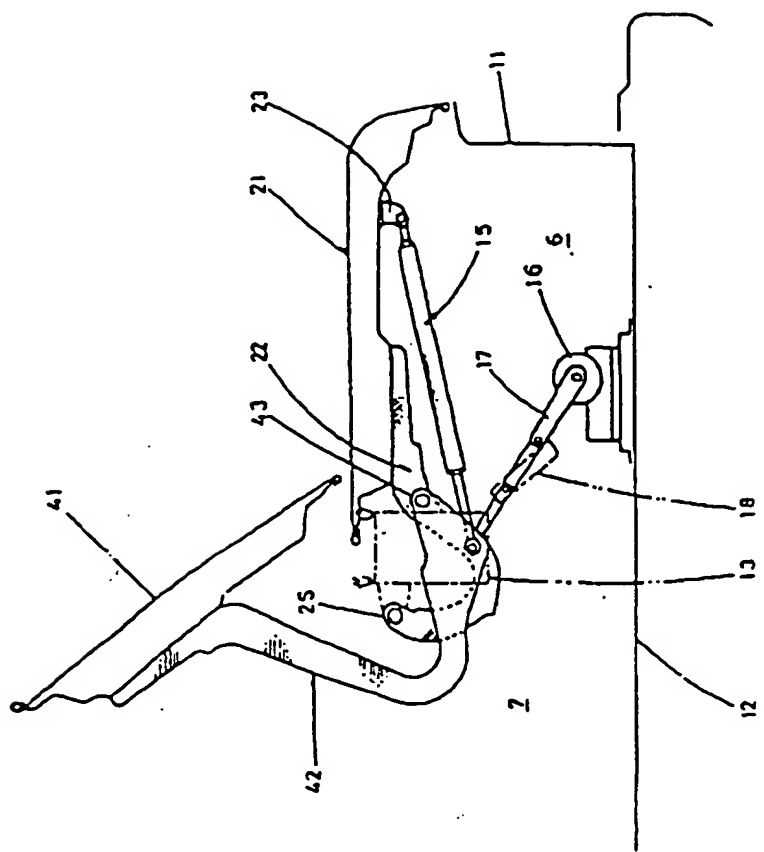
出願人 ヤツダ株式会社

代理人 大 浜

特 許 第 2-51925 号



第2図



第3図

365.

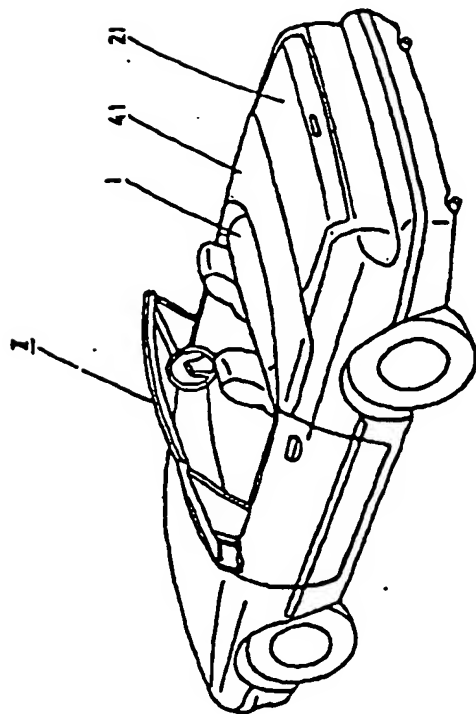
出願人 マツダ株式会社

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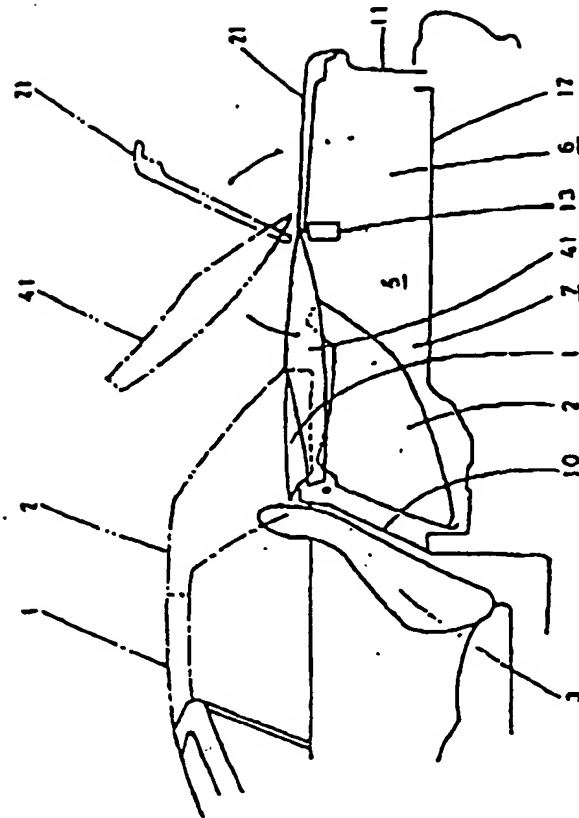


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第4図



第5図

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昭和2-51925



~~51925 (N2177-YK)~~

JP U.M. Appln. Discl. No. 2-51925 - Apr. 13, 1990

U.M. Application No. 63-131400 - Oct. 5, 1988

Applicant: Mazda Kogyo K.K., Hiroshima, Japan

Title: "Open/close member structure for a vehicle"

Claim:

1. An open/close member structure for a vehicle in which a first room and a second room are formed adjacent each other, said first and second rooms having a first open/close member and a second open/close member, respectively, which can be opened or closed alternatively, said structure characterized in that said first and second open/close members are coupled with an open/close member support base via respective hinge arms, said open/close support base being mounted at a center position between said first and second rooms, and that an assist member for assisting the opening of said open/close members is disposed such that its one end is coupled with one of said first and second open/close members, while the other end of the assist member is coupled with the hinge arm of the other open/close member.

#### DETAILED DESCRIPTION OF THE UTILITY MODEL

(Industrial field of application)

The present utility model relates to the structure of open/close members in a vehicle.

(Prior art)

Cars of open-roof type are known in which the roof can be detached and stored in a roof storage room provided in a rear deck section between the passenger cabin and the trunk room (See JP U.M. Appln. Discl. No. 62-8818, for example.). The roof storage room has a freely openable rear-deck cover for opening and closing of the room.

(Means of solving the problem)

Some of the aforementioned type of cars are designed such that the trunk room and roof storage room are adjacent each other in the rear section of the car. Each room has an open/close member, namely, a trunk room lid for the trunk room and the rear-deck cover for the roof storage room, by which the respective rooms can be opened or closed. Each open/close member is usually equipped with a devoted assist member such as a gas damper in order to assist the opening of each open/close member.

The assist members provided for the respective open/close members inevitably extend into the trunk room and roof storage room and therefore limit the available space in each room. Furthermore, they require an increased number of parts and lead to an added cost for the manufacture of the open-roof system.

In view of the foregoing, it is the object of this utility model to provide an open/close member structure for the type of vehicles in which the above-mentioned two rooms adjacent each other has individual open/close members whose opening is assisted by the

assisting member, wherein a single assist member is shared by a first and a second open/close member, thereby allowing the rooms to be more effectively utilized while decreasing the manufacturing costs by the reduction in the number of parts.  
(Means of achieving the object)

. In order to achieve the object, the utility model specifies that, in a vehicle having a first and a second rooms adjacent each other and having a first and a second open/close member attached to the first and second rooms, respectively, where the first and second open/close members are openable alternatively, the first and second open/close members are coupled via a hinge arm in each case with an open/close member support base allowing them to be opened or closed, said open/close member support base being provided in a center position between the first and second rooms, and that an assist member for assisting the opening of the open/close members is disposed such that its one end is coupled with one of the first and second open/close members and its other end is coupled with the hinge arm of the other open/close member.  
(Operation)

In accordance with the utility model, when one end of the assist member is coupled with the first open/close member for opening and closing the first room and the other end with the hinge arm of the second open/close member for opening and closing the second room, for example, the hinge arm functions as the support base point for the assist member when opening the first open/close

member, while the first open/close member functions as the support base point for the assist member when opening the second open/close member, thereby assisting the opening of the respective open/close members and allowing the assist member to be shared.

(Advantageous effects of the utility model)

In accordance with the open/close member structure of the present utility model, since the assist member is shared between the two open/close members, the following advantageous effects can be obtained;

- 1) The space occupied by the assist member in the respective rooms can be minimized, thus allowing the respective rooms to be utilized more effectively; and
- 2) Compared with the case of providing individual assist members to the respective open/close members, the number of parts can be reduced, which contributes to reduction in manufacturing costs.

(Embodiment)

In the following, a preferred embodiment of the utility model will be described by referring to Figs. 1 to 5.

Fig. 4 shows an overall view of an automobile Z equipped with the open/close structure according to the embodiment of the utility model. Fig. 5 shows a partial enlarged cross-section of the rear of the vehicle. The automobile Z is of the open-roof type in which the roof portion, i.e., a roof panel 1 and a rear

pillar 2, are detachable. When the roof is attached, the roof panel 1 and the rear pillar 2 extend over ~~the upper portion of~~ the driver's seat to form the passenger cabin, as shown by the chain line of Fig. 5. When the roof is detached, the roof panel 1 and the rear pillar 2 are folded and stored in the vacant room 5 to the rear of the sheet 3, as indicated by the solid line of Figs. 4 and 5. ✓

The vacant room 5 is a substantially box-like, open-top space formed by a sheet back panel 10 immediately behind the sheet 3, an end panel 11 at the rear of the vehicle, and a rear floor panel 12 connecting these two panels. The portion of the vacant room nearer to the sheet 3 from a deck member 13 which is mounted laterally at the hinge section at the center of the longitudinal direction of the vehicle is used primarily as a roof storage room 7. The portion nearer to the end panel 11 is primarily used as a trunk room 6. The rear pillar 2 and roof panel 1 can be stored in the roof storage room 7.

The trunk room 6 and the roof storage room 7 are provided with a trunk room lid 21 and a deck cover 41, respectively. The trunk room lid 21 and the deck cover 41 are movable with the deck member 13 as a support such that the trunk room 6 and the roof storage room 7 can be alternatively opened or closed by the trunk room lid 21 and the deck cover 41 (In Fig. 5, the closed state is indicated by the solid line while the open state is indicated by the chain line.). The support structure and operation of the

trunk room lid 21 and the deck cover 41 will be described by referring to Figs. 1 to 3.

The trunk room lid 21, which corresponds to a first open/close member recited in the Claim, extends from the deck member 13 to the end panel 11 in such a manner as to cover the opening of the trunk room 6 (corresponding to a first room recited in the Claim). One end 22a of a curved lid-side hinge arm 22 is fastened to the underside 21a of the trunk room lid 21 towards the deck member 13. The other end 22b of the curved lid-side hinge arm 22 is coupled with a hinge bracket 24 via a hinge pin 25 such that the hinge arm can be moved up and down, the hinge bracket 24 being mounted on the side of the roof storage room 7 facing the deck member 13. Accordingly, the trunk room lid 21 can be moved up and down about the hinge pin 25 in such a manner as to be positioned either in a closed position for closing the trunk room 6 as shown in Figs. 1 and 3, or in an opened position for opening the trunk room 6, as shown in Fig. 2. The closed position of the trunk room lid 21 is secured by a locking mechanism (not shown) provided between a rear-end portion 21b of the trunk room lid 21 and the end panel 11. The lock<sup>ing</sup> mechanism can be released by operating a release lever (not shown) located beside the driver's sheet. The trunk room lid 21 is opened or closed manually.

The deck cover 41, which corresponds to a second open/close member recited in the Claim, extends from the deck member 13 to the sheet back panel 10, thereby covering the opening of the roof

storage room 7. (corresponding to a second room recited in the Claim). One end 42a of a curved cover-side hinge arm 42 is fastened to an underside 41a of the deck cover 41 towards the sheet back panel 10. The other end 42b of the cover-side hinge arm 42 is coupled with a hinge bracket 43 via a hinge pin 44 such that the hinge arm can move up and down. The hinge bracket 43 is mounted on the side of the deck member 13 towards the trunk room 6. Accordingly, the deck cover 41 can be moved up or down about the hinge pin 4 and ~~alternatively~~<sup>15</sup> assume a closed position for closing the roof storage room 7 as shown in Figs. 1 and 2, or an opened position for opening the roof storage room 7, as shown in Fig. 3.

The opening and closing of the deck cover 41 is performed by rotating the cover side hinge arm 42 by means of a motor 16 via a link mechanism 17, the motor 16 being mounted on the rear floor panel 12. The activation of the motor 16 is linked with the opening or closing operation of the roof 1 and rear pillar 2. Numeral 18 designates a link guide for regulating the direction of movement of the link mechanism 17.

Furthermore, in this embodiment, a gas damper 15 (corresponding to an assist member recited in the Claim) is provided for assisting the opening of the trunk room lid 21 and deck cover 41. The gas damper 15 is shared between the trunk room lid 21 and the deck cover 41. One end 15a of the gas damper 15 is pivotally coupled with a hinge bracket 23 mounted on the trunk

room lid 21, while the other end 15b is pivotally coupled with the cover-side hinge arm 42. Accordingly, when the trunk room lid 21 and the deck cover 41 are both closed as shown in Fig. 1 and when opening the trunk room lid 21 as shown in Fig. 2, the cover-side hinge arm 42 serves as the support point for the gas damper 15, so that the trunk room lid 21 can be opened with the assistance of the extending force provided by the gas damper 15. Conversely, when the deck cover 41 is to be opened as shown in Fig. 3, the hinge bracket 23 of the trunk room lid 21 serves as the support point for the gas damper 15, so that the deck cover 41 can be lightly opened with the assistance of the extending force of the gas damper 15.

Thus, in accordance with the structure according to the present embodiment, the sole gas damper 15 is shared between the trunk room lid 21 and the deck cover 41. As a result, the space occupied by the gas damper in the trunk room 6 and roof storage room 7 can be reduced as compared with the case of providing a devoted gas damper to each of the trunk room lid 21 and deck cover 41. At the same time, the number of parts required for the entire device can be reduced, thereby contributing to the reduction in manufacturing costs.

While in the above-described embodiment, the gas damper 15 was mounted between the trunk room lid 21 and the cover-side hinge arm 42, it is possible to mount the gas damper between the deck cover 41 and the lid-side hinge arm 22 in another embodiment of



the utility model.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a cross section of the rear portion of a vehicle equipped with the open/close structure according to the embodiment of the utility model;

Figs. 2 and 3 illustrate the various states of the structure of Fig. 1;

Fig. 4 is an external perspective view of the vehicle equipped with the open/close structure according to the embodiment of the utility model; and

Fig. 5 is a view for the explanation of the rear portion of the vehicle of Fig. 4.

(Numerals:)

- 1 roof panel
- 2 rear pillar
- 3 sheet
- 5 vacant room
- 6 trunk room
- 7 roof storage room
- 10 sheet back panel
- 11 end panel
- 12 rear floor panel
- 13 deck member

15 gas damper

16 motor

21 trunk room lid

22 lid-side hinge arm

23 hinge bracket

24 hinge bracket .

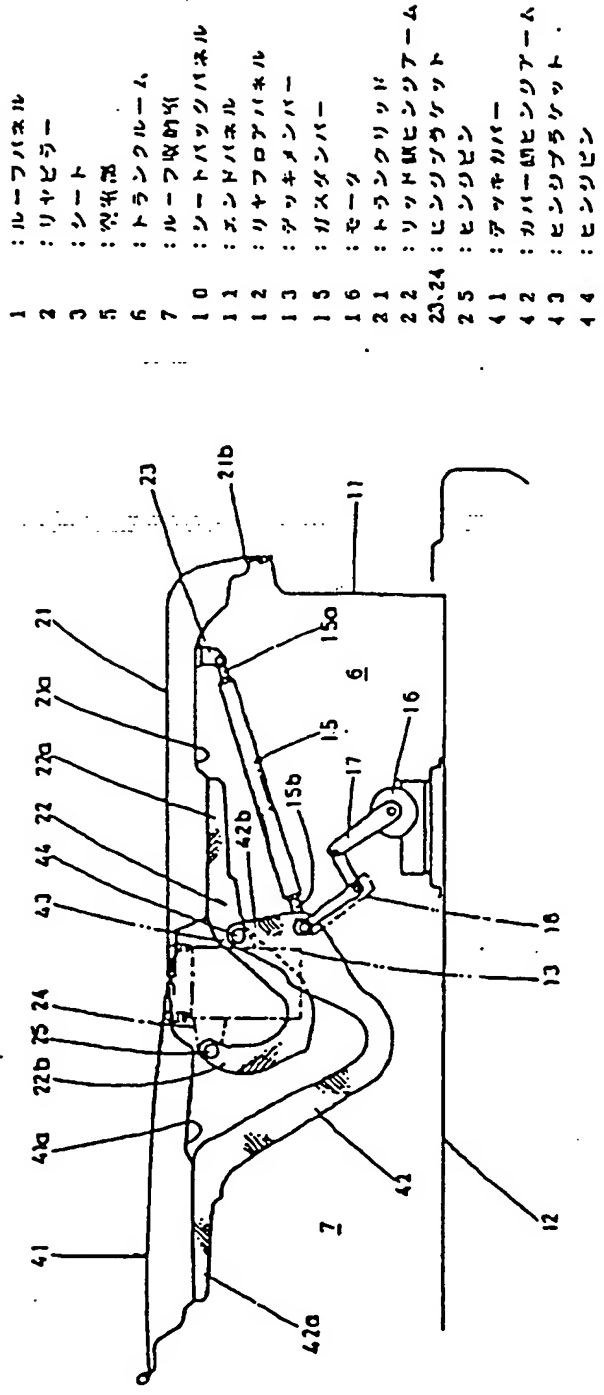
25 hinge pin

41 deck cover

42 cover-side hinge arm

43 hinge bracket

44 hinge pin

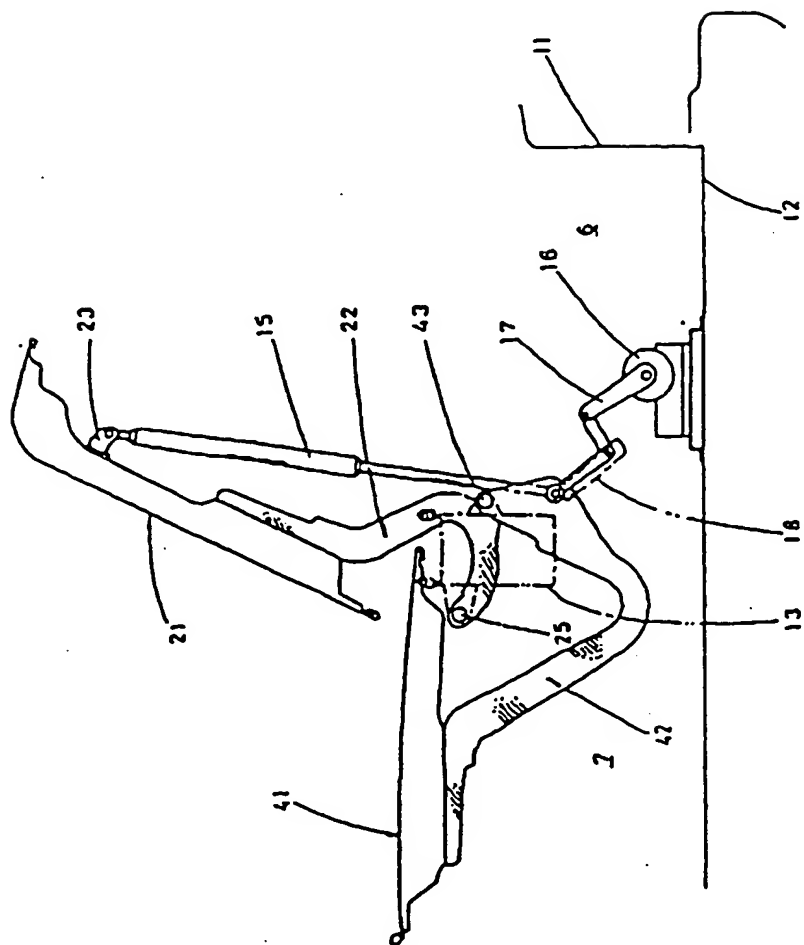


第1図

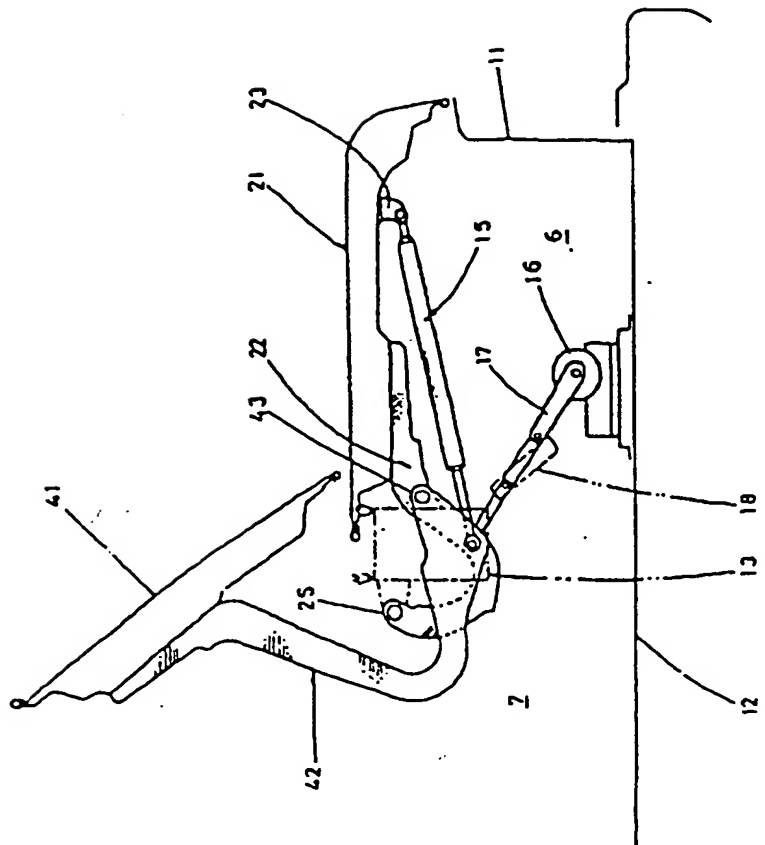
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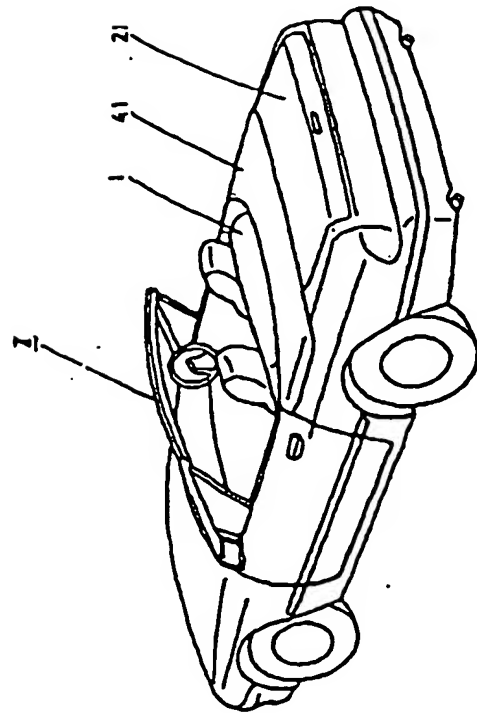


第2図

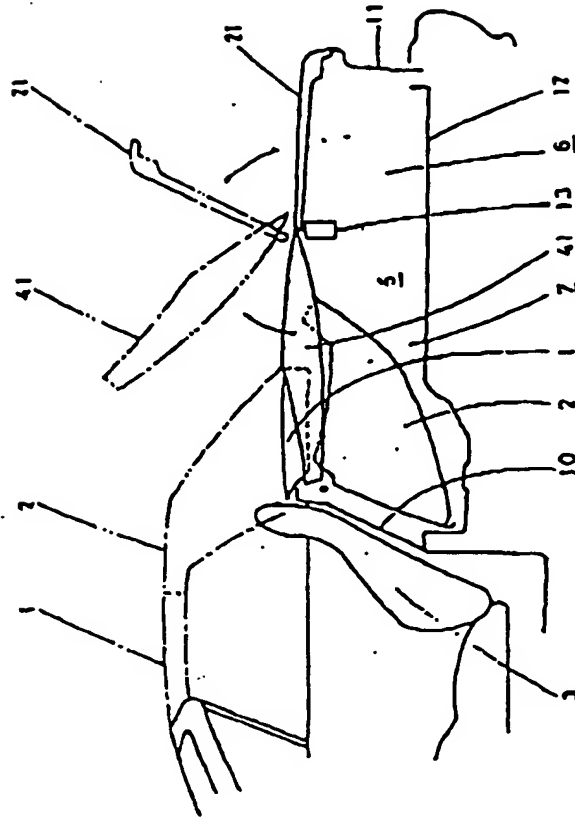


第3図

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第4図



第5図

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